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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,290	07/31/2001	Tianli Zhu	C-2501	2495

7590 06/23/2004

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EXAMINER

MCHENRY, KEVIN L

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,290	ZHU ET AL.	
	Examiner	Art Unit	
	Kevin L McHenry	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 is/are allowed.
- 6) ☒ Claim(s) 10 and 13-17 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/31/01</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-203804 in view of Chintawar et al. (U.S.P. 6,524,550).

JP 2000-203804 teaches a method of reducing the amount of carbon monoxide in a process fuel gas by feeding process fuel gas to a catalyst bed in a water gas shift reactor. The catalyst bed and process fuel gas react to convert at least a portion of carbon monoxide in the fuel gas via the water gas shift reaction. JP 2000-203804 teaches that air is mixed with the process fuel gas before the fuel is supplied to the shift reactor so that carbon monoxide will be oxidized and converted to carbon dioxide. JP 2000-203804 also teaches that the quantity of air in the hydrogen-rich gas is controlled by blowers and a control means (see JP 2000-203804; particularly abstract). The examiner notes that JP 2000-203804 has a U.S. Patent equivalent; Aoyama et al. (U.S.P. 6,455,008 – see column 2, lines 42-54; column 4, lines 50-62; column 5, lines 56-60; column 6, lines 17-52; column 7, lines 11-29).

JP 2000-203804 does not teach a catalyst that is composed of a noble metal or the cited non-noble metals on a promoted support.

Chintawar et al. teaches a catalyst that is used for a shift reaction that includes a platinum group metal with a promoted support of ZrO₂. Chintawar et al. teach that this

oxide is superior to Cu/ZnO catalysts because the latter causes exothermic reactions that can cause the catalyst temperature to rise to undesirable levels. Chintawar et al. teach that their catalyst minimizes temperature rise and can be used over a wide range of temperatures. (See U.S.P. 6,524,550; column 4, lines 56-67; column 5, lines 1-9, 21-40).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of JP 2000-203804 by the teachings of Chintawar et al. One would have been motivated to do so in order to provide a catalyst that can be used over a wide range of temperatures and minimizes temperature rise, as taught by Chintawar et al.

Allowable Subject Matter

3. Claim 18 is allowed.
4. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be a nonobvious improvement over the invention of JP 2000-203804. The improvement comprises the use of less than about 0.2 mol% oxygen.

Response to Amendment

6. Upon carefully reviewing applicant's amendment filed 18 April 2004, the examiner acknowledges the cancellation of claim 11, the amendments to claims 10, 12

and 14, and the addition of claims 16-18. The former claim objection is withdrawn in view of applicant's amendments. The former objection to the Information Disclosure Statement is also withdrawn in view of the applicant's comments.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

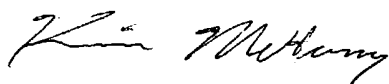
8. Applicant's arguments with respect to claims 10 and 13-17 have been considered but are moot in view of the new ground(s) of rejection.

The examiner notes that the catalyst taught by Chintawar et al. operates in a wide range that is appropriate for water gas shift reactors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin McHenry

Kiley Stoner AU 1725
Kiley Stoner 6/17/04